Typhoon Hagibis – October 2019

Typhoon Hagibis impacted Japan in October 2019 with significant infrastructure damage, flooding and disruption to the hosting of the Rugby World Cup. Hagibis is estimated by EM-DAT to be the 3rd costliest (inflation adjusted) on record in the Pacific region since 1991. The event occurred whilst Japan was hosting the Rugby World Cup and preparing for the Japanese Grand Prix with no event contingencies, organiser's sought solutions in front of the world's media, with some criticism levelled against the lack of continuity planning for such a scenario given the season.

The Hokuriku-Shinkansen line (pictured) was significantly impacted and the East Japan Rail company scrapped 12 trains that had been inundated, a third of the lines rolling stock. The rail line operated a reduced capacity for an extended period.

Significant rainfall resulted with over 922mm (36.2 inches) at Hakone, near Tokyo. 99 fatalities occurred with 73% of those greater than 65 years of age.

Resources available

- Rainfall data –official
- Media coverage
- Economic impact assessment
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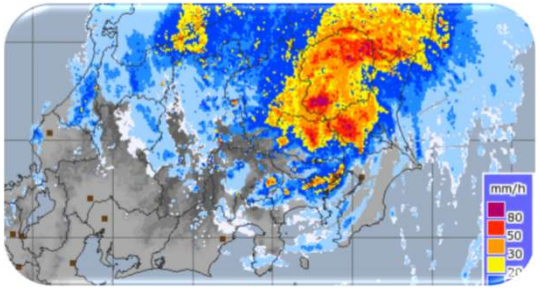
Useful to

- Insurance
- Government
- Critical infrastructure
- Disaster managers
- Event organisers



JMA Radar and Hokuriku-Shinkansen line rolling stock depot *(Reuters)*

Governance Questions

How do we rely on forecasts? How are they used? Is there a risk if observed conditions are different?

Have we considered a range of scenarios in continuity plans that include low likelihood, high consequence?

What assumptions have been made for critical infrastructure locations? Are they within risk appetite?

Do we refer to climate change as a future scenario? How does that impact culture?

Learnings Checklist

Category	Event	Learning/prevention activity	Question?
Reputation and crisis planning	Continuity planning: Lack of clarity on approach to two major international sporting events underway in Japan. Major event planning disruption and some reputational impacts. (SA)	Stakeholder expectations, in the form of continuity plans, were not met leading to organisational crisis for the two committees. Not having a plan should be seen as an active choice.	Is there a plan for seasonal risk?
Critical infrastructure	Critical infrastructure: Flooding of railway depot with rare frequency flood. Loss (scrapped) of 10 Shinkansen, (Bullet trains) of the Hokuriku Shinkansen Line in Nagano City yard. (SA) (US$300 million write off) (BBC)	Planning of critical infrastructure should ensure the outcome, ($400 million loss of rolling stock, ticket receipts, reputational) is within risk appetite.	Has risk appetite been assessed on the outcome of the event, even if low consequence?
Continuity planning	Meteorological: Typhoon intensification was one of the fastest on record from Tropical Storm to Cat. 5. (AMS)	Speed of such intensification problematic for forecasters/response professionals.	How will decisions be made with uncertainty? Have our plans considered forecast uncertainty?
Crisis planning	Compound risk: Earthquake during Typhoon (BBC)	Resourcing / response of Low likelihood, high consequence, credible planning	Is compound events planning required?
Climate change	Economic impacts	3rd, post inflation adjustment typhoon costs in Pacific. Four of top ten costliest typhoons in Pacific have been since 2019 (record since 1991) (Statista)	What is the culture around climate change?
Risk scenarios	Meteorological: Data from JMA shows 942mm in any 24 hours and 922mm in a calendar day at Hakone, a 24-hour record for Japan since 1974. 48-hour records were also set.	Benchmark climate events can be used for scenario testing of credible events.	Have we included low likelihood, credible events in planning?
Governance and Risk	Social: 73% of fatalities were older than 65 years according to Cambridge University Press (2021)	Ability to respond was linked to age with physical ability to respond and receive warnings (tech) key issues.	Do plans consider a range of people needs?

Climate Resilience
connect@climres.com.au
Natural Hazard Governance and Advisory

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